# Agricultural Marketing Behaviour and Practices of Rural Farmers in Dibrugarh District, Assam

[Synopsis of the Ph.D. Thesis]


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## (Synopsis)

## INTRODUCTION

*"Agriculture is the most healthful, most useful and most noble Employment of Man".*

**- George Washington**

Agriculture forms the cornerstone of India's economy, with over 70% of rural populations relying on it for their livelihood, where agriculture is the main source of income and 90% are farmers (Bhattacharya, 2022). Agriculture is a platform that provide farmers to sell their produce and effective agricultural marketing helps farmers to understand crop values, make informed decisions and promote healthier food options while creating rural jobs.

The Agricultural Marketing system in Northeast India is distinctly different from other states in the country. Agriculture is a vital part of Assam's economy, with approximately 99 percent of the state's land area classified as rural and nearly 50 percent dedicated to cultivation (NIAM, 2012). Despite this, the sector remains underdeveloped, facing significant challenges in terms of technology, finance and market practices. At the same time, it is true that extensive research studies are essential for the development of a particular area.

Vegetable cultivation as a subset of agriculture plays an important role in overall agriculture sector. Vegetable being perishable in nature, require proper handling for marketing, as it depends not only on production but also on marketing system. Major constraints in marketing vegetables include insufficient market information, significant price fluctuations, considerable price spreads, malpractices in weighing and storage, inadequate storage facilities, high labor costs and inadequate transportation facilities. Understanding the behaviour and practices of the farmers is essential for overcoming the challenges, which involves how markets operate, the roles of various stakeholders and the processes involved in getting products from farms to consumers.

Marketing behaviour refers to a person's attitude or conduct towards marketing activities (Nadhika and Krishnankutty, 2023), which is shaped by a range of important decisions influenced by multiple factors that include the accessibility of markets that encompasses both physical proximity and economic feasibility, determining where and how farmers sell their produce. Marketing practices helps farmers to do the specific activities, methods and techniques that use to implement their marketing strategies. These practices are the concrete actions taken to promote, sell and distribute

farmers produced. Farmers play a central role in agricultural marketing behavior and post-harvest marketing practices, which serve as key participants in the entire marketing process from production to consumption.

## REVIEW OF LITERATURE

The reviews of literature are discussed under the following concept as follows:

A. Fundamentals of Agricultural Marketing
B. Scenario of Farmers in the field of Agricultural Marketing
C. Agricultural Marketing System and Schemes
D. Digital Agricultural Marketing – Apps and Portals
E. Related Research Studies

**Kshash and Oda (2023)** conducted research on, "Marketing behaviour of vegetable growers in Al-Qassim district, Babil Province, Iraq" to determine marketing behaviour of vegetable producers and determine factors affecting marketing behaviour differences in behaviour based on socio-economic characteristics, surveyed with a sample of 200 randomly selected farmers. The research found that majority of the respondents (70.5%) had medium level of marketing behaviour. Farmers primarily used plastic and mesh bags for packaging and sold their produce to wholesalers at the local market immediately after harvest, often using rental vehicles for transportation and receiving full payment on the spot. Neighbours, relatives, and progressive farmers were the main sources of market information, while newer farmers exhibited higher marketing behaviour scores than more experienced ones. The study emphasizes the need for strategies to improve marketing practices, suggesting better access to market information, enhanced infrastructure and training programs.

**Gayathri et al., (2021)** conducted study on, "Study on Marketing Behaviour of 'Uzhavar Sandhai' Vegetable Farmers During Covid 19 in Coimbatore District of Tamil Nadu" aims to study the overall marketing performance and challenges in marketing their produce. Vegetable farmers at Uzhavar Sandhai exhibited a moderate level (62%) of overall marketing behaviour during the COVID-19 period. A sample of 50 Vegetable farmers was selected from the two 'farmer's markets situated at R.S. Puram and Vadavalli based on random sampling method. The study identified key marketing constraints, including limited transportation facilities. It also found that occupation, total landholdings and farming experience significantly influenced marketing behaviour. They recommended establishing direct selling markets at the village level

to address the challenges faced and ensure that fresh produce reaches nearby consumers efficiently, reducing wastage.

**Pasha and Paramashivaiah (2020)** carried out a research on, "Marketing Behaviour and other Attributes of Vegetable Growers-A Study at Tumakuru District in Karnataka" aims to study the vegetable growers marketing behaviour, analyze the relationship between attributes of vegetable growers and their marketing behaviour and to offer suitable suggestions to overcome the problems faced by the producers, middlemen and consumers. The researcher adopted random sampling with a 100 vegetable growers. The researcher identified most of the farmers agreed that the performance of the cultivating function was moderate. Factors such as cost of picking information received from village extension officer, total cultivation cost and maintenance cost which were considered to be the best predictors of performance of cultivating function. The researcher also scrutinized the problems such as cost of picking, maintenance cost, cultivation cost and poor information provided by village extension officers reducing the performance of this functional area. Most of the farmers agreed that the overall performance was good. Some personal and business factors influencing and affecting the overall performance of the farmers.

**Kumar et al., (2018)** conducted research on, "Marketing Behaviour of Vegetable Growers in Uttarakhand hills" put forth the marketing behaviour of the vegetable growers and constraints in marketing of vegetable produce. Results revealed that most farmers sold their produce at distant markets, using private transportation. They practiced grading and spent over six hours weekly on farm activities, with market choices influenced by relatives, friends, and merchants. Key challenges included high middlemen commissions, fluctuating prices, lack of nearby markets, high transport costs and packaging expenses. Solutions suggested include forming horticulture-based self-help groups, organizing weekly markets, enforcing market regulations, and providing market guidance to growers.

**Maratha and Badodiya (2017)** carried out a research on, "Study on Marketing Behaviour and Other Attributes of Vegetable Growers at Kota Block of Kota District in Rajasthan" proclaimed on the attributes and marketing behaviour of vegetable growers, enlist the problems of vegetable growers and obtain suggestions. The study revealed that majority 72.50 percent respondents had medium level of marketing behaviour about vegetables. All the 13 selected attributes of vegetable growers, were found positive and significant relationship with marketing

behaviour except age, farming experience, extension participation and innovativeness in vegetable production and coefficient of determination R2 was 0.7862.

**Srinivas et al., (2016)** conducted research on, "Marketing behaviour of vegetable growers" to know the marketing behaviour of vegetable growers, identify the source of marketing information and to ascertain constraints perceived by the farmers in marketing. 120 vegetable growers were selected from the four taluks of the Kolar district by simple random sampling technique. The findings revealed that, 48.33 per cent used tempo to transport their produce, 46.67 per cent used plastic crates as packing material, majority of the farmers sold their produce immediately after harvest in the nearby markets. Whereas, 71.67 per cent farmers opined that, they receive full payment on the spot after sale. Commission agents (95.83%) and neighbours/relatives (66.67%) were the important source of market information. Major problems in marketing were price fluctuation (97.50%), followed by high hamli charges (66.67%) and high transport charges(64.17%).

**Statement of the Problem**

Agriculture being the most important sector, it is also facing lots of problem in marketing. Farmers in Assam face substantial challenges in vegetable marketing due to limited access to resources, inadequate market information and marketing channels, impacting their economic sustainability. There is a need to understand the socio-economic factors that influence these farmers' marketing behaviour and practices, including age, gender, marital status, education, land size and annual income. The barriers, behaviours and traditional practices in vegetable marketing need exploration to identify key areas for improvement. As the potential of digital marketing grows, assessing farmers' awareness and opinions on both conventional and digital marketing channels can reveal their readiness for new marketing tools. By providing educational awareness, the study aims to evaluate the impact of enhanced knowledge on farmers' marketing behaviours, supporting their economic resilience and adaptability.

**Need of the Study**

- Vegetables are very perishable in nature which require prompt handling and sale to prevent losses. Therefore, it is very important to focus on the effective marketing of vegetables.
- Understanding the marketing behavior and practices of farmers is important because it provides a detailed understanding of how farmers navigate the market, make decisions

and face challenges in selling their produce.

- Information with respect to agricultural marketing is urgent to empower farmers to make informed decisions as the existing marketing system needs to be updated through improvement in knowledge, attitude and skills.
- Education on digital Agricultural Marketing helps the farmers to reach their customers within a very short lead time and make available of all products of farm origin to consumers at reasonable price without impairing on the quality of the produce.
- Combining digital and offline marketing allows for a more comprehensive approach, utilizing the strengths of both to maximize market reach, customer engagement and boost sales for vegetable producers and marketers.

**Research Gap**

Despite extensive research on agricultural marketing in India, there remains a significant gap in understanding the marketing behaviours and practices of rural farmers in Dibrugarh, Assam. Most of the studies have not addressed how regional socio-economic factors, combined with limited access to marketing channels, shape farmers' marketing decisions. Hence, the study seeks to fill the gaps by examining both traditional and digital marketing practices, exploring behavioural influences on marketing decisions of the farmers and awareness on Digital Marketing Practices.

**The objectives of the study are to:**

1. Study the Socio-Economic characteristics of the Farmers.
2. Identify the Behaviour, Practices adopted and Barriers experienced in the field of Marketing Vegetables by the Farmers
3. Assess the Knowledge and Opinion of the farmers towards Vegetable Marketing and Digital Marketing and
4. Imparting Educational Awareness on Agricultural Marketing and Assess the Impact of Educational Awareness among the Farmers.

**Research Questions**

- What are the marketing practices followed by the farmers towards vegetables?
- How do farmers adapt their Marketing Behaviour on vegetables?
- What factors influence the Marketing Behaviour?

- What are the knowledge and opinion of farmers regarding the Agricultural marketing and Digital Agricultural marketing?
- What are the challenges encountered by the farmers, and what recommendations do they propose for overcoming them?

**Formulation of the Hypothesis**

- H1: There is a significant association between Socio economic characteristics and Marketing Practices on Vegetables.
- H2: There is an association between Socio economic characteristics and level of Marketing Behaviour.
- H3: There is a relationship between Socio economic characteristics and Factors Influencing Marketing Behaviour.
- H4: There will be an Impact of Knowledge, Opinion and Marketing Behaviour among the Farmers on Agricultural Marketing before and after Educational Awareness.
- H5: There will be a significant difference before and after Educational Awareness based on the Socio-economic characteristics with Knowledge, Opinion and Marketing Behaviour level among the Farmers.

**Limitations of the Study**

- The study includes farmers who cultivates and market only Vegetables.
- Due to frequent heavy rainfall, data collection was occasionally delayed, affecting the scheduled timelines and accessibility to certain remote areas.
- The area of the study is only in Dibrugarh District, Assam.

## METHODOLOGY

The methodology comprises of three phases Preliminary Phase, Pre- assessment Phase and Post Assessment Phase

### PHASE I- Preliminary Phase

**Research Design**

In the present study the researcher followed Descriptive research design, which involves the collection of data from individuals, groups or phenomena at a single point in time.

**Selection of the study area**

The study was conducted in the Barbaruah Development Block within the Dibrugarh district of Assam. In this block, two Panchayats, Bagibill Gram Panchayat and Rajabheta Gram Panchayat, were selected. From Bagibill Gram Panchayat, three villages—Walkhabi,

Chawolkhiwa NC and Lengapather were chosen, while from Rajabheta Gram Panchayat, the villages of Bagibill, Tekela Chiring, and Aaithan Dighala were selected for the study.

**Selection of the Sample and Size**

A total of 600 rural farmers were selected for the study using a stratified random sampling method. The researcher randomly selected 100 farmers each from six villages namely Walkhabi, Chawolkhowa NC and Lengapather (Bagibill Gram Panchayat) Bagibill, Tekela Chiring, and Aaithan Dighala (Rajabheta Gram Panchayat) within the Barbaruah Developmental Block.

**Selection of the Methods and Tools**

The researcher adopted survey method and the research tool used for the study was Interview Schedule. A well-structured Interview schedule were prepared in English taking into consideration the various objectives of the study. In this study, interview schedule validation was conducted through expert review to ensure that the instrument met content validity requirements

**Inclusion and Exclusion Criteria**

Inclusion criteria of the study are Farmers residing in rural areas of Dibrugarh district, Assam; Individuals actively engaged in Vegetable Farming and Farmers who sell their produce through formal or informal markets. Exclusion Criteria of the study are Individuals engaged in other occupations or not directly involved in agricultural activities; Farmers who do not regularly participate in agricultural markets.

**Developing Rapport Building**

Researcher built rapport through interaction with the farmers, Listening and understanding their problems and Showing interest through mutual talks.

**Selection of variables**

Independent variables and Dependent variables were identified on perusal of literature and were selected for the study. Independent variables include Age, Gender, Educational qualification Marital status, Land size, Experience in Farming and Annual income and Dependent variables include Marketing Practices, Marketing Behaviour, Barriers experienced by farmers and Impact on Educational awareness on Knowledge, Opinion and Marketing Behaviour of Agricultural Marketing.

**Conduct of Pilot study**

The researcher conducted a pilot study for 40 farmers in Bagibill village under Rajabheta Gram Panchayat (Barbaruah Development block). Based on the findings of the pilot study Cronbach's Alpha value of 0.792 was found, which exceeds the acceptable threshold of 0.7.

This indicates a strong internal consistency for the constructs of the tool and confirming high level of reliability.

**PHASE II- Pre- assessment Phase**

**Collection of data:**

The researcher gathered data from both primary and secondary sources. Primary data has been collected through interview schedule tool by interviewing and face to face communication from farmers. The researcher personally visited to interview all the farmers (600 farmers) in their farm and home in order to collect data. The duration of time during the data collection differ from person to person. The time taken for interviewing each farmer took 20 minutes to 30 minutes.

**Duration of the study**

The data collection for the present study was carried out by the researcher from August 2022 to January 2023.

**Educational Awareness on Agricultural Marketing**

The researcher conducted a seven day Educational Awareness Program on 'Agricultural Marketing' for 50 farmers, selected based on their interest in the topic. The program's content was thoughtfully designed to match the farmers' preferences and covered a wide range of topics related to agricultural marketing. The objective was to enhance farmers' understanding of market dynamics, specifically in terms of knowledge, opinion and marketing behaviour. The program aimed to empower farmers with the skills to navigate agricultural markets more effectively and make informed decisions that could improve their livelihoods.

**PHASE III- Post Assessment Phase**

**Analysis and Interpretation of Data**

The data were interpreted and statistical test were applied in order to find percentage analysis, mean, standard deviation, chi square (Association between socio economic characteristics and Marketing Practices and Marketing Behaviour), correlation (Relationship between socio economic characteristics and factors influencing Marketing Behaviour), factor analysis (Factors Related to Opinion of the Farmers on vegetable marketing), Garrett ranking (Barriers Experienced by the Farmers in Marketing Vegetables, rank wise) paired sample t-test (Knowledge, Opinion and Marketing Behaviour of the farmers towards Agricultural Marketing

before and after educational awareness programme), one-way ANOVA (Significant differences before and after educational awareness based on socio economic characteristics and knowledge, opinion and marketing behaviour of the farmers)

## RESULTS OF THE STUDY

### General Profile of the Farmers

The socio economic characteristics of the farmers reveals that forty-one percent of farmers are in the age group of 30-55 years, Sixty-six percent of the farmers belongs to the male category, Thirty-seven percent of farmers belong to the Other Backward Class (OBC), eighty three per cent of the farmers are Hindu, Forty-four percent of farmers studied up to middle school, ninety three per cent of the farmers are married and less than ten per cent of the farmers are widowed and divorced, Fifty one per cent of the farmers have 10-15 years of farming experience and forty one per cent have 5-10 years of experience.

Sixty-seven percent of farmers come from nuclear families, Sixty-two percent of farmers belongs to medium-sized families (4-5 members), Sixty per cent of farmers indicated that their father as the head of the family. Majority (81%) of farmers primary occupation is agriculture, Fifty-eight percent of the families are engaged in farming having two members and five percent have only one member involved and fifty nine per cent of the farmers earn between Rs (50,000 and 1 lakh) per annum.

### Existing Status of the Farmers

### Land details of the Farmers

Majority (96%) of the farmers possessed their own land, forty-three percent of farmers have 1- 2 hectares of landholdings (small farmers). Cent per cent of the farmers reported they have arable land and alluvial soil.

### Material Possession of Farmers

Cent per cent of the farmers have basic agricultural tools such as yokes and spades, Based on the house hold materials available, 92% of the farmers own clocks, 98% of the farmers own bicycles, Regarding communication media 98% of the farmers predominantly use mobile phone.

### Availability of Village Infrastructure Facilities

Thirty three per cent of the farmers conveyed the type of road in their village as mud roads, blacktop roads and paver block roads. Thirty nine per cent of the farmers mentioned that

the road conditions is good. Cent per cent of the farmers reported having toilet facilities in their houses. Cent per cent of the farmers stated that primary and junior secondary schools is available but no senior secondary schools. Cent per cent of the farmers reported there are no public health centres, community health centres and private nursing homes in the villages, no post office and no internet café in the village. However, cent per cent of the farmers stated that Anganwadi is situated and lack of e-connectivity centre in the village.

**Irrigation Pattern followed by the farmers**

Fifty eight percent of the farmers rely on tube well, 93% of the farmers opt for manual irrigation, 96% of the farmers indicated that they did not received any subsidies for water saving technologies. 87% of the farmers reported experiencing irrigation pattern changes season wise and cent per cent of the farmers irrigate the crops based on the demand.

**Cropping Pattern followed by the Farmers**

Fifty four percent of the farmers adopted intercropping type of cropping system. 95% of the farmers reported that the farmers changing the crop patterns from year to year. Sixty per cent of the farmers reported that men make the decisions regarding cropping pattern. 95% of the farmers reported relying on hired labour for cultivation activities. Fifty four per cent of the farmers depend on family labour for cultivation. 98% of the farmers cultivated seasonal crops, and gets advice for quality produce from Experienced farmers.

**Varieties of Vegetables Cultivated**

Cent percent of the farmers cultivated coriander as leafy vegetables. 82 % of the farmers cultivated cauliflower as cruciferous varieties. 84 % of the farmers cultivated cucumber as marrow varieties. Sixty-two per cent of the farmers cultivated potato as roots and tubers varieties. Sixteen percent of the farmers cultivated onion as bulb varieties and 81 % of the farmers cultivated green beans as pod & seeds varieties.

**Inputs used by the Farmers for vegetables cultivation**

Sixty five per cent of the farmers use hybrid type of seed for crop cultivation. 85% of the farmers purchased seeds from Local seed stores. Sixty eight per cent of the farmers selected the seed varieties due to better keeping and processing quality. Cent per cent of the farmers use inorganic (chemical) fertilizers. 82% of farmers cite easy availability as the primary reason for using inorganic fertilizer. Sixty-six per cent of the farmers source of fertilizer is Agricultural supply stores. Cent per cent of the farmers use inorganic pesticides, specifically insecticides

and herbicides. 82 % of the farmers reported that easy availability as the reasons for using inorganic pesticides. Cent per cent of the farmers source their pesticides from agricultural supply stores.

**Membership and Training attended by the Farmers**

Forty-four per cent of the farmers are members of organization, thirty three per cent of farmers are members of Self-Help Groups (SHGs). Cent percent of the farmers involved in social participation such as Local Festival Celebration Day. Sixty six percent of the farmers own Kisan Credit Cards. Fifty percent of the farmers purpose is to meet short-term credit requirements for crop cultivation.

Fifty seven per cent of the farmers attended training programme and forty three per cent of the farmers do not attended any training programme. Thirty three percent of the farmers attended 2-3 days training and forty one percent of the farmers received training on crop production. Fifty seven percent of the farmers received training provided by District Agricultural Offices and Krishi Vigyan Kendra.

**Savings and Credit Patterns of Farmers**

89% of the farmers have a bank account and thirty-nine per cent of the farmers have an account in State Bank of India. Cent percent of the farmers source of income is farming and least nine percent source of income is from other family members. About fifty-six per cent of the farmers are not satisfied with their agricultural income. Cent percent of the farmers do not have any debts as farmers are managing their finances responsibly. 82% of the farmers prefer to keep their savings as cash in hand and cent percent of the farmers purpose of savings is to meet regular needs.

**Mass media Exposure of the Farmers**

96% of the farmers not at all read newspapers and five percent of the farmers read newspaper. The source is from tea stall and shop and the purpose of using newspaper is for only news. 99% not at all read magazines and one percent of the farmers read them once or twice a week. The source of acquiring magazine is from tea stalls and the reason is to read only for entertainment purposes. One per cent of the farmers listen and owns radio once a week and occasionally use radio for entertainment. Forty five per cent of the farmers do not watch television and seventy five per cent of the farmers own a television. Forty per cent of the farmers use Samsung phone. Sixty three percent of the farmers purchased phone within the price range between Rs (1000-5000) and 97% of the farmers choose for the price. 94 % of the farmers use daily and forty six percent of the farmers use jio mobile operator. The average time

spent on phone displayed that sixty four percent of the farmers spend less than 30 minutes on their phone. 97 % of the farmers use for phone calls and for agriculture.

**Extent of Urban &Extension Agency Contact**

Majority 86% of the farmers have occasional contact with urban agencies and sixty percent of the farmers occasionally contact with extension agencies. The purpose of visits for urban contact unveiled that majority (86%) of the farmers purpose is for agriculture as well as for non-agriculture and for extension agency sixty percent of the farmer purpose is only for agriculture.

**Chat Corners of Farmers for discussion cum informal talks**

Cent per cent of the farmers stated that they gather under the tree for informal talks, thirty six percent through mobile SMS interaction, local market and in temple and five percent in tea shops and least three per cent in banks.

**Details on Marketing of Vegetables**

**Information on Marketing of Vegetables**

Twenty two percent of the farmers sell their produce to commission agents in the formal market and Forty one percent of the farmers sell their produce in village haats. 98% of the farmers receive high prices as the benefit of market channel. Sixty seven percent of the farmers always find a market for all the goods they produce. Sixty seven percent of the farmers mentioned market-determined pricing by the government. Sixty percent of the farmers receive prior information to sales and forty-five per cent of the farmers receive information daily. Seventy-four per cent of the farmers do not combine their produce with other farmers. Fifty two percent of the farmers rate the available market infrastructure as ‘bad’ and fifty eight percent of the farmers occasionally helps to plan their production and sales accordingly.

**Source of Receiving information on Agricultural marketing**

Majority (89%) of the farmers received information from relatives regularly. Fifty three per cent of the farmers occasionally receive information from input dealers and cent percent of the farmers never receive any information related to agriculture marketing from local traders. Thirty six percent and thirty-three per cent of the farmers reported that they regularly and occasionally receive information from television. 90% never receiving information from newspaper. 99% of the farmers transfer information to their own family regularly. Seventy two percent of the farmers give information occasionally to all the known people and 81% of the farmers never give information to the farmers of the neighbouring village.

**Marketing Practices adopted by the farmers in Vegetables Marketing**

Majority (93%) of the farmers prefer to harvest their vegetables during the early morning hours, specifically between 4 to 9 am. Sixty six per cent of the farmers sort and grade their vegetables due to insect attacks and presence of diseased or damaged produce. Forty two percent of the farmers do wash their vegetables and the reason is to remove dirt and dust. About 91 % of the farmers trim their vegetables, primarily to remove unwanted particles. Twenty three percent of the farmers precool primarily to remove field heat after harvest. Twenty percent of the farmers do undertake post-harvest disease control due to prone to infection by microorganisms .

About fifty seven percent of the farmers use electronic weighing machines. Forty one percent of the farmers use controlled/modified atmosphere storage methods and Cent percent of the farmers store the produce in the home. Fifty three percent of the farmers have to travel a distance ranging from 11 to 30 kilometres to sell their vegetables. Thirty four percent of the farmers primary selling point is nearby weekly markets. Forty one percent of the farmers sell their produce to commission agents. 75 % of the farmers use Jute bags (Gunnybags) + Bamboo Baskets to pack vegetables while transportation. Forty two percent of the farmers transport to sell vegetables by bicycle. 83% of the farmers receive payment at the time of selling. Sixty per cent of the farmers dispose the quantity of the produce by volume.

**Association between Marketing Practices and Socio-economic Characteristics of the farmers**

The significant association between Marketing practices and socio-economic Characteristics of the farmers found that educational qualification and size of land showed a highly significant association at the 1% level, whereas, annual income and farming experience exhibited a significant association at the 5% level. Whereas age, gender and marital status, were found to have no significant association with marketing practices. Therefore, the hypothesis (H1-There is a significant association between marketing practices and Socio-economic characteristics of the Farmers) is accepted.

**Marketing Behaviour of the Farmers towards Vegetables Marketing**

Farmer highly prioritize determining the appropriate timing of harvest to preserve post-harvest longevity with highest mean score of **3.71**. For Sorting and grading for quality, damaged by physical injuries during harvesting in the field scored the highest mean of 3.36. Farmers identified a shortage of transport facilities as their most significant challenge, with the highest mean score of 3.95. Regarding the packaging of vegetables, the highest mean score of

4.31 for maintaining the overall quality of the produce. About the time of sale of produce, the highest mean score of 3.33 for selling immediately after the harvest regardless of the prices. Farmers select a particular period to sell the vegetables due to high perishability of their crops with a mean score of 3.97. The reasons for selecting a particular market was due to higher price of return with the highest mean score of 3.13. The criteria for fixing price was based on production cost with a highest mean score of 4.45.

**Level of Marketing Behaviour**

Forty seven percent of the farmers had moderate level of marketing behaviour. Twenty six percent of the farmers had low level of marketing behaviour, while twenty-seven per cent of the farmers had high level of marketing behaviour.

**Association between Socio Economic Characteristics and level of Marketing Behaviour**

Farmers socio economic characteristics and their marketing behavior indicates significant associations between age, educational qualifications and annual income at 5 % level. Hence, the hypothesis (H2: There is an association between Socio economic characteristics and Level of Marketing Behaviour) is accepted.

**Factors Influencing Marketing Behaviour of Farmers**

The factors influencing farmers' marketing behaviour, with income generation and sustainable livelihoods having the highest mean score of 3.00. Meanwhile, accessible transport facilities for market access received the lowest mean score of 1.19, likely due to the limited availability of transportation options.

**Relationship between Socio Economic Characteristics and Factors Influencing Marketing Behaviour**

The relationship between socio economic characteristics of vegetable farmers and the factors influencing their marketing behaviour, as reflected by the zero-order correlation coefficients found that the age and educational qualifications are significant at the 1% level and size of land is significant at the 5% level Hence, the hypothesis (H3: There is a relationship between Socio economic characteristics and Factors Influencing Marketing Behaviour) is rejected. is rejected.

**Knowledge of the Farmers on Agricultural Marketing**

98% of farmers agree that 'Vegetables are produced seasonally but the market requires products throughout the year' and sixty two per cent of the farmers disagree on the statement, "Retail Markets are Higher rates than wholesale markets". 94% of the farmers agreed with the statement, "National Agriculture Market or eNAM is an online trading platform available for farmers." A remarkable 99% of farmers are somewhat aware of the Farmer Producer Organizations (FPOs) scheme. Thirty five per cent of the farmers are somewhat aware of the applications Krish-e and Kisan Suvidha apps. 94% of the farmers are somewhat aware of the National Agriculture Market (eNAM).

**Opinion of the Farmers on Agricultural Marketing**

The opinion of the farmers on vegetables marketing highlight the highest mean value of 3.95 for the statement, "Storage facilities for vegetable produce are sufficient," and the lowest mean value of 1.89 for the statement, "Standardization and grading increases the burden of a farmer,".

The Identification of the primary factor influencing farmers opinions on vegetable marketing of agricultural produced was determined to be **Factor 1** with a significant loading on nine variables and approximately 40 percent of the variance on knowledge on preservation, lesser role for women than men, good transportation, advertisement and promotion can increase the sales, helps consumers to understand, getting good price, better marketing facilities, selling products at the nearest market and producing product on demand.

The opinion of the farmers on digital agricultural marketing states that the statement, "Agricultural marketing apps is highly accepted because of its reliable information with the highest mean value of 4.36.

**Barriers experienced by the Farmers in Marketing Vegetables.**

High cost of inputs' is ranked first as the production barriers experienced by the farmers with an average Garratt score of 77.69. 'Not enough profit' is ranked first as economic barriers with a Garratt score of 64.65. 'Inaccessibility to market-related information' is ranked first as the communication barriers with an average Garratt score of 76.89. Timely unavailability of transportation as the storage and transportation barriers faced by farmers are ranked I with Garratt score of 71 and 'High Perishability of Produce' is ranked first as the marketing barriers experienced by the farmers with an average Garratt score of 84.4.

**Suggestions offered by farmers to overcome marketing Problems.**

98% of the farmers recommended setting up local marketplaces (Mandis) in nearby areas' and eleven per cent of the farmers suggested on distribution of electronic weighing for more accurate weight.

**Impact of Educational Intervention on Knowledge, Opinion and Marketing Behaviour of Agricultural Marketing**

**Impact of Knowledge on Agricultural Marketing.**

The impact of knowledge among farmers on vegetable marketing and digital agricultural marketing highlights statistically significant at the 1 % level, with a p-value of less than .000. The knowledge on Government schemes and programmes data indicates that among the eighteen schemes, seventeen schemes are significant at the 1% level, with p-values less than 0.001. However, the 'Sub-mission on Agricultural Mechanization (SMAM) Scheme' has a p-value of 0.020, which is significant at the 5% level. The knowledge on applications and portals for agriculture found to be significant at a 1 % level with regard to the Farmer's knowledge on all the mobile applications and portals for agricultural Marketing.

**Significant Difference between Knowledge level and Socio-Economic Characteristics of the Farmers**

The relationship between age and years of experience with the knowledge levels of farmers showed significant differences before and after the awareness with p value less than 0.001 and is significant at 1 % level. The educational qualification significantly impacts knowledge after the educational awareness and is significant at 5 % level. However, gender, annual income and land size showed no significant differences in knowledge levels either before or after. Hence, the hypothesis (H5: There will be a significant difference before and after Educational Awareness between Socio economic characteristics and Knowledge, Opinion and Marketing Behaviour Level among the Farmers) is accepted.

**Impact of Knowledge on Agricultural Marketing.**

The opinion of the farmers on vegetable marketing before and after the educational awareness found that nineteen statements are statistically significant at the 1% level, with p-values less than 0.001. However, the statement "One should sell their products to the nearest market irrespective of price" was found to be non-significant.

The opinion of the farmers towards Digital agricultural marketing before and after the educational awareness identified that all ten statements are highly significant at 1% level.

**Significant Difference between Opinion level and Socio-Economic Characteristics of the Farmers**

The significant difference after awareness occurred between age, educational qualification and years of experience 1 % significant level. While gender, annual income and land size, showed no significant differences in opinion levels either before or after. Thus, the hypothesis (H5: There will be a significant difference before and after Educational Awareness between Socio economic characteristics and Knowledge, Opinion and Marketing Behaviour Level among the Farmers) is accepted.

**Impact of Knowledge on Agricultural Marketing.**

All the aspects of marketing behaviour such as harvesting, sorting and grading, storage purpose, vegetable packaging, timing of sales, reasons for selecting specific periods, market choice and pricing criteria showed significant differences at 1% level, with p-values consistently below 0.01.

**Significant Difference between level of Marketing Behaviour and Socio-Economic Characteristics of the Farmers**

The significant difference between level of marketing behaviour and Socio-Economic characteristics of the farmers revealed that educational qualification and years of experiences exhibited significant differences with marketing behaviour at 1 % level of significance after the educational awareness. Whereas, annual income and land size indicates significant differences with marketing behaviour at 5 % level of significance. (H5: There will be a significant difference before and after Educational Awareness between Socio economic characteristics and Knowledge, Opinion and Marketing Behaviour Level among the Farmers) is accepted.

**Impact of Knowledge, Opinion and Marketing Behaviour of Agricultural Marketing before and after the Educational Intervention**

The overall score of the knowledge, opinion and marketing behaviour shows there was a significant increase after the educational awareness as indicated by the substantial rise in the mean score and highly significant at 1 % level since the p-value was less than .001. Thus, the hypothesis (H4: There will be an Impact of Knowledge, Opinion and Marketing Behaviour

among the Farmers on Agricultural Marketing before and after Educational Awareness Programme is accepted.

## CONCLUSION

Marketing practices and behaviours plays a crucial role in connecting farmers with consumers, ensuring consistent demand and sales for their produce. The study found that farmers exhibit a medium level of marketing behaviour. The comparison of farmer socio economic characteristics and their marketing behaviour indicates significant associations between educational qualifications and marketing behaviour. Education and size of land showed a highly significant association with marketing practices at the 1% level, whereas annual income and farming experience exhibited a significant association with marketing practices at the 5% level. The factors influencing farmers' marketing behaviour, with income generation and sustainable livelihoods having the highest mean score of 3.00. Key barriers include high input costs, not enough profit, limited access to market information, inadequate transportation facilities and the high perishability of their produce are faced by the farmers.

Digital marketing offers real-time updates on produce and enhances demand forecasting, while traditional methods like farmers' markets and in-store promotions cater to consumers who prefer selecting produce in person. Thus, Educational awareness on agricultural and digital marketing have positively impacted farmers. The impact of knowledge, opinion and marketing behaviour on agricultural marketing shows there was a significant increase after the educational awareness, as indicated by the substantial rise in the mean score and highly significant at 1 % level. Continued investment in education and infrastructure is thus important for optimizing marketing strategies and sustainable livelihood for farmers.

## RECOMMENDATION

### Government officials

- Development of Infrastructure such as market yards, warehouses, cold storage unit facilities and transportation networks to reduce post-harvest losses.
- Conduct training cum capacity-building programs for the farmers to improve their marketing skills, financial literacy and utilization of apps.
- Educate farmers on digital tools usage to access market information and sell their produce online.
- Cold Storage facilities for vegetables to prevent losses
- Promote the formation and strengthening of FPOs in the Panchayats
- Establishment of agro-processing units at the village level for value addition of vegetables.

**NGO's**

- Provide training on modern agricultural practices and post-harvest handling techniques.
- Facilitate microfinance services to help farmers invest in better inputs and technology.
- Create platforms for connections between farmers and potential buyers (wholesalers, retailers and food processing companies).

**Farmers**

- Improve post-harvest handling like proper cleaning, sorting, grading and packaging to maintain the quality and freshness of produce.
- Participation in local farmers markets to sell directly to consumers for better prices and customer relationships to avoid middleman.
- Network with other farmers, traders and agricultural experts to share knowledge, resources and market opportunities.

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SYNOPSIS

# Agricultural Marketing Behaviour and Practices of Rural Farmers in Dibrugarh District, Assam